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10/577,350	03/01/2007	Massimiliano Pavan	09877.0375	4138

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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
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EXAMINER

LEE, DANIEL HEON

ART UNIT	PAPER NUMBER
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4122

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/577,350	Applicant(s) PAVAN ET AL.	
	Examiner DANIEL LEE	Art Unit 4122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 49-97 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 49-97 is/are rejected.
- 7) ☒ Claim(s) 49, 74 and 94 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20070831, 20060428</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claims 49, 74, and 94 objected to because of the following informalities:

Regarding claim 49, in the third step of the process, “melting and mixing the first solid plastizer” should be “melting and mixing the first solid plasticizer”. Regarding claim 74, “plastizier” should be “plasticizer.” Regarding claim 94, “stand pelletizing system” should be “strand pelletizing system.” Appropriate correction is required.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 49-84, 88-89, and 95-97 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 7155094 (Donetti et al.) in view of Centofanti et al. (US 6103823) and Bastioli et al. (US 5462981).

Regarding claims 49 and 95, Donetti et al. (hereinafter Donetti) claims a water-resistant telecommunication cable comprising a solid and compact element housing at least one transmitting element, wherein the solid and compact element comprises a water-soluble polymer material comprising:

a vinyl alcohol/vinyl acetate copolymer having a hydrolysis degree of 60-95% and a polymerization degree higher than 1,800;

at least a first solid plasticizer, having a melting point of 50-100° C., and a second solid plasticizer having a melting point equal to or higher than 140° C., in an amount of 10-30 and 1-10 parts by weight per hundred parts by weight of the copolymer, respectively;

the water-soluble polymer material having:

a complex modulus equal to or higher than 2.5×10^6 MPa;

a ratio of the viscous modulus to the elastic modulus equal to or lower than 2.30; and

a glass transition temperature of 20-35° C. (See claim 1)

Regarding claims 50-67, 69-73, 75-77, 82, and 84, these claims recite the same subject matter as that claimed in claims 2-19, and 21-30 of Donetti, respectively.

Regarding claim 97, this claim also recites the same subject matter as claim 29 of Donetti.

Further regarding claims 49 and 95, Donetti claims all the details of the polymer material but does not expressly disclose the details of the process. Centofanti et al. (hereinafter Centofanti) discloses a three stage process that produces a polymer material by separately feeding in sequence an extruder with plasticizers (col. 6, line 11), wherein the process involves melting and mixing three charges of plasticizers (col. 3, lines 26-38), homogenizing the mixture (col. 5, line 24), and discharging the melt.

Regarding claims 74 and 83, Centofanti discloses a three stage process that includes adding sequentially three plasticizers. The plasticizers could be added in any order through experimentation.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the process of Centofanti to produce the composition of Donetti because the process incorporates plasticizers into polymer (PVA) manufacture to prevent degradation and cross-linking.

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Regarding claims 78-81, neither Donetti nor Centofanti expressly disclose the temperatures as claimed in the process. Bastioli discloses a process of producing plasticized polyvinyl alcohol wherein the temperature is controlled and manipulated around the melting points of the compositions and the extruder contains different heating zones (col. 2, line 62 to col. 3, line 8 and col. 5, lines 60-65). Bastioli discloses two regions in particular, wherein the temperature is between 60-180° C. in the first region and between 140-210° C. in the second region, which encompasses the temperatures claimed. Also, Bastioli discloses that the melt is kept at no higher than 170° C. (col. 3, line 18), which encompasses the melt discharge temperature of 205° C. or below, as claimed.

Regarding claims 68 and 96, these claims recite the same subject matter as claim 20 of Donetti with the addition of the process step of the third plasticizer being fed after the copolymer and the second plasticizer, at 170-220° C. Bastioli discloses a process step wherein the temperature is generally between 140° and 210° C. (col. 3, lines 8-9).

Regarding claims 88 and 89, Bastioli discloses an extruder that has a multi-zone thermally controlled barrel which comprises a thermal control apparatus (see col. 5, lines 60-65 and col. 2, lines 62-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to control the temperature as disclosed in Bastioli in the process of Centofanti because Bastioli recommends those temperatures for processing plasticized polyvinyl alcohol.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. **Claims 49-85, 88-89, and 95-97 rejected under 35 U.S.C. 103(a) as being unpatentable over Donetti et al. (US 7155094) in view of Centofanti et al. (US 6103823) and Bastioli et al. (US 5462981).**

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed

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in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Regarding claims 49 and 95, Donetti et al. (hereinafter Donetti) discloses a water-resistant telecommunication cable comprising a solid and compact element housing at least one transmitting element, wherein the solid and compact element comprises a water-soluble polymer material comprising:

- a vinyl alcohol/vinyl acetate copolymer having a hydrolysis degree of 60-95% and a polymerization degree higher than 1,800;

- at least a first solid plasticizer, having a melting point of 50-100° C., and a second solid plasticizer having a melting point equal to or higher than 140° C., in an amount of 10-30 and 1-10 parts by weight per hundred parts by weight of the copolymer, respectively;

- the water-soluble polymer material having:

- a complex modulus equal to or higher than 2.5×10^6 MPa;

- a ratio of the viscous modulus to the elastic modulus equal to or lower than 2.30; and

- a glass transition temperature of 20-35° C. (See claim 1)

Regarding claims 50-67, 69-73, 75-77, 82, and 84, these claims recite the same subject matter as that claimed in claims 2-19, and 21-30 of Donetti, respectively.

Regarding claim 85, Donetti discloses a process wherein the multi-screw extruder is a co-rotating twin-screw extruder (col. 15, line 26).

Regarding claim 97, this claim also recites the same subject matter as claim 29 of Donetti.

Further regarding claims 49 and 95, Donetti discloses all the details of the polymer material but does not expressly disclose the details of the process.

Centofanti et al. (hereinafter Centofanti) discloses a three stage process that produces a polymer material by separately feeding in sequence an extruder with plasticizers (col. 6, line 11), wherein the process involves melting and mixing three charges of plasticizers (col. 3, lines 26-38), homogenizing the mixture (col. 5, line 24), and discharging the melt.

Regarding claims 74 and 83, Centofanti discloses a three stage process that includes adding sequentially three plasticizers. The plasticizers could be added in any order through experimentation.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the process of Centofanti to produce the composition of Donetti because the process incorporates plasticizers into polymer (PVA) manufacture to prevent degradation and cross-linking.

Regarding claims 78-81, neither Donetti nor Centofanti expressly disclose the temperatures as claimed in the process. Bastioli discloses a process of producing

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plasticized polyvinyl alcohol wherein the temperature is controlled and manipulated around the melting points of the compositions and the extruder contains different heating zones (col. 2, line 62 to col. 3, line 8 and col. 5, lines 60-65). Bastioli discloses two regions in particular, wherein the temperature is between 60-180° C. in the first region and between 140-210° C. in the second region, which encompasses the temperatures claimed. Also, Bastioli discloses that the melt is kept at no higher than 170° C. (col. 3, line 18), which encompasses the melt discharge temperature of 205° C. or below, as claimed.

Regarding claims 68 and 96, these claims recite the same subject matter as claim 20 of Donetti with the addition of the process step of the third plasticizer being fed after the copolymer and the second plasticizer, at 170-220° C. Bastioli discloses a process step wherein the temperature is generally between 140° and 210° C. (col. 3, lines 8-9).

Regarding claims 88 and 89, Bastioli discloses an extruder that has a multi-zone thermally controlled barrel which comprises a thermal control apparatus (see col. 5, lines 60-65 and col. 2, lines 62-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to control the temperature as disclosed in Bastioli in the process of Centofanti because Bastioli recommends those temperatures for processing plasticized polyvinyl alcohol.

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7. Claims 86, 87, and 90 rejected under 35 U.S.C. 103(a) as being unpatentable over Donetti et al. (US 7155094), Centofanti et al. (US 6103823), and Bastioli et al. (US 5462981) in view of Marten et al. (US 5051222).

The combined teachings of Donetti, Centofanti, and Bastioli are detailed in the rejection of Claims 49-85, 88-89, and 95-97 above.

Regarding claims 86, 87, and 90, Donetti, Centofanti, and Bastioli do not expressly teach a process wherein the multi-screw extruder provides an energy input of 0.15-0.50 kWh/kg or 0.30-0.40 kWh/kg. The references also do not expressly teach a thermal control apparatus comprising an electrical system for heating and a water system for cooling.

Regarding claims 86 and 87, Marten et al. discloses a process wherein the extruder provides an energy input of at least 0.27 KW hr/kg, and preferably 0.35 KW hr/kg to 0.45 KW hr/kg, which encompasses the limits claimed.

Regarding claim 90, Marten et al. discloses a process wherein the thermal control apparatus comprises an electrical system for heating and a water system for cooling (see col. 15, lines 18-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rapidly cool the extruded melt. The rationale to do so would have been the motivation provided by the teaching of Marten that to do so would predictably reduce the heat history and improve the resulting color of the extrudable polyvinyl alcohol (see abstract).

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8. Claims 91-94 rejected under 35 U.S.C. 103(a) as being unpatentable over Donetti et al. (US 7155094), Centofanti et al. (US 6103823) and Bastioli et al. (US 5462981) in view of Avgousti et al. (US 6426026).

The combined teachings of Donetti, Centofanti, and Bastioli are detailed in the rejection of Claims 49-85, 88-89, and 95-97 above.

Regarding claims 91-94, Donetti, Centofanti, and Bastioli do not teach a pressure build-up system followed by a die head is a tight pitch conveying section in the multi-screw extruder, a gear pump, or a single screw extruder flanged or in cascade to the multi-screw extruder. The references also do not teach a cutting device is provided after the die head and the cutting device is a dry air cutting system or a strand pelletizing system with fast centrifuge water separation.

Regarding claims 91 and 92, Avgousti et al. (hereinafter Avgousti) teaches a pressure build-up system followed by a die head is provided at the end of the multi-screw extruder wherein the pressure build-up system is a gear pump (see col. 1, lines 14-15 and col. 4, lines 49-59; exiting the extruder barrel... under a positive pressure... pressure required can be supplied from... gear pump... or the like).

Regarding claims 93 and 94, Avgousti teaches a cutting device provided after the die head wherein the cutting device is a dry air cutting system or a strand pelletizing system (see col. 2, lines 15-20 and col. 6, line 35; strand pelletizers; either wet or dry).

It would have been obvious to one of ordinary skill in the art to use a cutting mechanism provided after the die head to pelletize the strands. The motivation to do so

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would have been the motivation provided by the teaching of Avgousti that the pellets can then be efficiently collected and packaged (see col. 6, lines 33-36).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2005/0175834 discloses a water-resistant telecommunication cable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL LEE whose telephone number is (571)270-7711. The examiner can normally be reached on Monday-Thursday, 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571)272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/D. L./
Examiner, Art Unit 4122

/Timothy J. Kugel/
Primary Examiner, Art Unit 1796